

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 94-027  
REVISING ORDER NO. 88-062

FINAL SITE CLEANUP REQUIREMENTS FOR

**BRANDENBURG FAMILY ASSOCIATES ONE  
A CALIFORNIA LIMITED PARTNERSHIP**

**BRANDENBURG, STAEDLER & MOORE  
A CALIFORNIA GENERAL PARTNERSHIP AND**

**PHIL WOOD, DOING BUSINESS AS PHIL WOOD AND COMPANY**

for the property located at

**153 WEST JULIAN STREET  
SAN JOSE  
SANTA CLARA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. **Site Location and Description** The site is located on 153 West Julian Street near the downtown area of the City of San Jose, Santa Clara County. The site is situated about 12 miles southeast of the San Francisco Bay, and it comprises approximately 0.29 acres.
2. The land surface of the site vicinity is generally flat. The land use of the site vicinity is primarily for light-industrial and commercial. Structures at the site vicinity consist of one- and two-story warehouses and garage buildings, with the occasional parking lot and undeveloped lot.
3. **Site History and Regulatory Status** Brandenburg Family Associates One ("Brandenburg"), is the current beneficial owner of the 153 West Julian Street property. Brandenburg-Butters Associates I, a former beneficial owner, purchased the property from James Murphy in 1985. Mr. Murphy acquired the property from Eggo Foods in 1969. Brandenburg-Butters ceased operation at the facility on December 31, 1992, and was replaced with Brandenburg. Since 1985, Brandenburg, Staedler & Moore ("BSM"), has been the title owner of the property, initially for the benefit of the Brandenburg-Butters and then for the benefit of Brandenburg.

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4. Eggo Foods installed two underground storage tanks (USTs) of capacities 1000- and 300-gallon for gasoline storage. From 1978 to 1988, Phil Wood and Company ("Phil") occupied the building and manufactured specialty bicycle parts and supplies. Phil utilized 1,1,1-trichloroethane (1,1,1-TCA) to clean metal parts and stored it in the 1000-gallon tank. Phil stopped storing 1,1,1-TCA in the UST in April 1984. After discontinuing use of the UST, TCA was stored in a drum that was placed within a metal pan for double containment until Phil vacated the building in August 1988. Subsequently, the use of 1,1,1-TCA at the site was terminated. The building is now vacant.
5. Phil is named as a discharger because of its chemical usage history and his chemical release to soil and groundwater underneath the 153 West Julian Street property, during his occupancy of the property. Brandenburg and BSM are named as dischargers because they are the current beneficial and title owners of the property, respectively. Phil is no longer at the site, and did not have the financial capability to cleanup the site. Brandenburg has been and will be cleaning up the site. If additional information is submitted indicating that any other parties caused or permitted any waste to be discharged on the site where it entered or could have entered waters of the State, the Board will consider adding that party's name to this Order.
6. **Previous Board Orders and Permits** The Board has adopted the following orders and permits for the 153 West Julian Street site:
  - Site Cleanup Requirements Order No. 88-062, adopted April 20, 1988.
  - Waste Discharge Requirements Order No. 88-129 (NPDES Permit No. CA0029459), adopted August 17, 1988.
7. **Hydrogeology** Based on the hydrogeologic investigations at the site, the geology beneath the site consists of an inter-bedded sequence of alluvial, estuarine, and shallow bay deposits and are predominantly comprised of clays and silts, with intermixed sand and gravelly sand beds. Three water-bearing zones are identified underneath the site (shallow, intermediate, and deeper water-bearing zones at about 30, 50 and 75 feet below ground surface (bgs), respectively). The regional, confined aquifer, which is a primary source for agricultural, municipal and industrial water supplies, occurs in the site vicinity at depths greater than 200 feet bgs. The regional aquifer is separated from the upper three water-bearing zones by an approximately 80- to 100-foot thick

interval of confining clay aquitard (regional aquitard).

8. Brandenburg-Butters conducted a survey of public and/or private wells within three-mile radius of the site to assess any potential inter-aquifer conduits in 1987. There are deep wells within half-mile radius or more of the site. However, no potential conduit for inter-aquifer movement of groundwater was identified within Brandenburg-Butters' plume boundary.
9. The groundwater flow direction in the shallow and intermediate water-bearing zones is generally north to northeast toward the San Francisco Bay. The intermediate and deeper zones are potential sources of drinking water. Presently, the shallow, intermediate and deeper zones beneath the site are not used as drinking water supply.
10. Brandenburg-Butters initiated soil and groundwater investigations at the site in July 1985. Brandenburg-Butters found 1,1,1-TCA and its breakdown products and total petroleum hydrocarbons (TPH) in soil and in groundwater underneath the site.
11. Soil Investigation and Remediation From July 1985 to October 1987, Brandenburg-Butters conducted soil investigation to assess the extend and distribution of VOCs in soil. Brandenburg-Butters excavated and removed the two USTs in July 1985. Soil samples collected from the excavated area measured up to 10,000 ppm of 1,1,1-TCA at 16 feet bgs. In September 1986, about 162 cubic yards of contaminated soil was excavated to a depth of 19 feet. Soil excavation continued laterally until chemical analysis indicated less than 20 ppm of 1,1,1-TCA concentration, except under the building. Although VOC concentrations underneath the building were about 50 ppm, Brandenburg-Butters purposely halted excavation because further excavation would have jeopardized the structural integrity of the building.
12. To develop alternative measures for monitoring and/or cleaning up VOC-affected soils, five soil borings from the proximity of the former USTs area were drilled to about 19 feet bgs in 1987. Investigation results indicated VOCs remaining in soils as a potential threat to the shallow zone. Further soil excavation was infeasible since contaminated soil beneath the building was unreachable. Therefore, Brandenburg-Butters installed soil-vapor extraction and treatment systems (SVES) as an interim remedial measure (IRM) to remove remaining VOCs from the soil in November 1988.

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13. In February 1993, Brandenburg conducted an extensive additional soil investigation to delineate the extent of VOCs remaining in the vadose-zone and to assess the effectiveness of the SVES. Total VOC concentrations measured no more than 0.710 ppm, which is below the allowable cleanup action level, 1 ppm. This reduction of VOC concentrations in soil is attributed to the SVES.
14. Evaluation of SVES The SVES has been in operation since November 1988. It consists of four vapor extraction wells connected to a carbon adsorption treatment system to treat contaminated vapors prior to discharge. Brandenburg-Butters has been monitoring the system routinely. Initial soil-vapor influent samples contained up to 1,800 ppm and 160 ppm concentrations of 1,1,1-TCA and 1,1-DCA, respectively. As of May 1991, the total VOC concentrations dropped to less than 16 ppm. Average air flow rates at the SVES have been relatively consistent at about 60 ft<sup>3</sup>/minute while VOCs mass removal has reduced. The average VOC mass removal rates achieved by the SVES has decreased from approximately 4.25 pounds per day (lbs/d) at early stage to less than 0.50 lbs/d within the first year of operation. To increase the system's efficiency, Brandenburg-Butters introduced pulse pumping (about 1 week on, 1 week off). The removal rate has remained relatively constant to about 0.2 lbs/d. The system has removed about 1,000 pounds of total VOCs since start-up of the system.
15. Based on the February 1993 soil data and SVES operational data, remaining VOCs in soil pose no leaching threat to groundwater and further operation of the SVES is not needed. However, Brandenburg plans to retain the SVES in standby mode for consideration of future use if water level drops significantly in the shallow zone.
16. Groundwater Investigation and Remediation From 1985 through 1987, Brandenburg-Butters conducted groundwater remedial investigation in three water-bearing zones underneath the site. Analytical results indicated about 733,000 ppb and 725 ppb of total VOC concentrations in shallow and intermediate zones, respectively, primarily 1,1,1-TCA. Other contaminants such as TPH and aromatic compounds were also detected less frequently and at low concentrations, most likely attributed to a former adjacent gasoline station located at 149 West Julian Street. Trace of VOCs were also detected in the deeper zone.

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17. In February 1993, Brandenburg conducted additional shallow groundwater investigation under the building, using modified hydropunch technique to determine the lateral and vertical distribution of pollutants and to evaluate final remedial measures. Water samples contained up to 330,000 ppb of total VOC concentrations in the immediate proximity of the former tank locations. VOCs were laterally distributed to less than 5 ppb about 90 feet north and 250 feet west of the source areas. VOCs were not found vertically below 31 feet bgs.
18. **Evaluation of Groundwater Interim Remedial Measures** Brandenburg-Butters initiated interim remedial measures for contaminated groundwater in 1988. The interim system initially consisted of two shallow, one intermediate, and one deeper groundwater extraction wells and an air stripper followed by carbon adsorption. The treated waste water is discharged to the storm sewer tributary to Guadalupe River under NPDES permit. This interim system was implemented to reduce VOC concentrations and to contain the plume. The system has been in full operation since 1989, except for minor operational problems at the beginning.

**Shallow Zone:** Shallow extraction wells E-1 and E-2 have been operational since 1988. In 1991, Brandenburg-Butters converted one of the shallow monitoring wells (WC-1) to an extraction well to increase the removal rate of VOCs. In April 1992, well WC-1 was removed from service because highly VOC-affected water was exceeding the mass removal capacity of the treatment system. In November 1993, pumping from well WC-1 resumed concurrent with the addition of two new extraction wells (E-3 and E-5) installed as part of the final remedial system.

**Intermediate Zone:** Extraction from the intermediate well (LF-1) has been intermittent since 1988. This well was removed from service in September 1991, when monitoring results indicated VOC concentrations below MCLs. LF-1 was returned to service in April 1992, primarily to dilute highly VOC-affected extracted shallow groundwater. Pumping from this well was terminated after modifications to the treatment system were completed in November 1993. Except for monitoring, well LF-1 will remain inactive.

**Deeper Zone:** Deeper zone extraction well LF-1C was operated at the site from July 1989 through January 1990. Extraction from this well was terminated when monitoring results indicated VOC concentrations below detection limits. Well LF-1C was temporarily returned to service between January and May in

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1992 because fourth quarter of 1991 sampling data indicated trace of VOC concentrations possibly due to vertical-cross contamination. Except for monitoring, well LF-1C will remain inactive.

19. Since the start-up of the groundwater extraction system in 1988, VOC migration has been controlled. The system has not been as effective as anticipated in reducing VOC concentrations in shallow groundwater because of low pumping rates. The combined pumping rate from the shallow wells has been less than 200 gpd. As of June 1991, the system removed about 22 pounds of VOCs. With the addition of the two new shallow extraction wells, the average pumping rate will be about 1.5 gpm (2160 gpd) and the VOC removal rate is expected to increase as well.
20. **Adjacent Site:** A fuel leak occurred at a former gasoline station at 149 West Julian Street, another Brandenburg's property. No regulatory agency is actively overseeing this site. The tanks are closed in place under permits issued by the San Jose Fire Department. Brandenburg did not propose any cleanup alternative for this site, except to continue monitoring. If deemed necessary, the Regional Board will address this issue separately.
21. **State Water Resources Control Board Resolutions**

**State Board Resolution 68-16:** On October 28, 1968, the State Board adopted Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California." This policy calls for maintaining the existing high quality of State waters unless it is demonstrated that any change would be consistent with the maximum public benefit and not unreasonably affected beneficial uses. This is based on a Legislative finding, contained in Section 13000, California Water Code, which states in part that it is State policy that "waters of the State shall be regulated to attain the highest water quality which is reasonable." The original discharge of wastes to the groundwater at this site was in violation of this policy.

**State Board Resolution 88-63:** On May 19, 1988, the State Board adopted Resolution 88-63, "Sources of Drinking Water." This resolution states that, with certain exceptions, surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply.

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22. Regional Water Quality Control Board Resolutions

**Regional Board Resolution 88-160:** Resolution 88-160 strongly encourages the maximum feasible reuse of extracted water from groundwater pollution remediations either by the discharger or other public or private water users. The discharger has already demonstrated that reuse is not feasible at the site, with the possible exception of groundwater recharge.

**Regional Board Resolution 89-39:** Resolution 89-39, "Incorporation of 'Sources of Drinking Water' Policy into the Water Quality Control Plan" on March 15, 1989. This policy defines groundwater as suitable or potentially suitable for municipal or domestic supply if it: 1) has a total dissolved solids content of less than 3,000 mg/l, and 2) is capable of providing sufficient water to supply a single well with at least 200 gallons a day.

For purposes of establishing cleanup objectives, the intermediate and deeper water-bearing zones at this site qualify as potential sources of drinking water. However, some portions of the shallow water-bearing zone(s) do not qualify as potential sources of drinking water based on the second criteria.

23. Water Quality Control Plan The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Board approved it on May 21, 1987. The Basin Plan contains Water Quality objectives and beneficial uses for South San Francisco Bay and contiguous surface and ground waters.

The existing and potential beneficial uses of the groundwater underlying and adjacent to the facility include:

- a. industrial process water supply
- b. industrial service water supply
- c. municipal and domestic water supply, and
- d. agricultural water supply.

The Board amended the Basin Plan on September 16, 1992 (to implement two statewide plans) and again on October 21, 1992 (to formalize groundwater protection and management policies). The latter amendment describes how groundwater cleanup standards should be established. The primary objective is to maintain background, but standards should be set no higher than

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maximum contaminant levels (MCLs), and may be set lower based on a site-specific risk assessment. The Board will consider several factors when setting cleanup standards: cost and effectiveness of cleanup alternative, time to achieve cleanup, and pollutants toxicity, mobility, and volume.

24. **Summary of Risk Assessment** The risk assessment determined the primary chemicals of interest and their toxicity and identified potential exposure pathways and routes. Then, the assessment computed risks for carcinogenic and non-carcinogenic chemicals in the groundwater, and compared them to the EPA recommended risk range. The assessment assumed on-site workers under the commercial/industrial scenario and used drinking water standards (MCLs), which are the final cleanup goals to evaluate the risk.

**Toxicity Classification for Chemicals of Interest:** Three compounds have been consistently detected in the site groundwater. These compounds are 1,1,1-TCA, 1,1-DCA, and 1,1-DCE and are classified as indicator chemicals. Of these three compounds, 1,1,1-TCA is found at significantly higher concentrations.

One of the indicator chemicals, 1,1-DCE is a class "C" carcinogen (possible human carcinogen, limited evidence of carcinogenicity in animals with inadequate human data). TCA and 1,1-DCA are non-carcinogens (Class "D").

**Exposure Assessment:** Under current use of the site, there appear to be no complete exposure pathways. The risk assessment did not identify the shallow groundwater as an exposure pathway for ingestion.

The assessment recognized two potential pathways of exposure. The first hypothetical pathway is the use of intermediate and deeper groundwater underneath the site as a source of drinking water. Quantification of exposure from this pathway assumes ingestion as an exposure route. The second hypothetical pathway is exposure to vapor of VOCs by inhalation exposure route that vaporizes from the contaminated shallow groundwater. Inhalation exposure routes assumes exposure of 20 cubic meters per day of air (U.S. EPA, December 1989) by 70-kg person, and ingestion exposure routes assumes exposure of drinking 2 liters of water per day by 70-kg person (U.S. EPA, 1988 & 1989).

**Post-Cleanup Risk:** Quantified public health total risks were determined using



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the estimated potential chemical intake from the hypothetical drinking water well and inhalation of vapor that were computed utilizing the MCLs as a final cleanup goal for all pollutants of the site. This approach protects the use of the intermediate and deeper groundwater, and it would protect the future beneficial uses of the shallow groundwater underneath the site. For 1,1-DCE, the excess cancer risk predicted is about  $1 \times 10^{-4}$ ; this total includes both the inhalation and ingestion routes. This excess cancer risk level lies within the EPA's recommended risk range ( $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ). The total hazard index (HI) for the three indicator chemicals was found to be 0.042. EPA recommends that the total HI for a site not exceed 1.0.

A deed restriction or an equivalent mechanism is appropriate to assure that future owners are aware of VOC contamination and to prohibit the use of the shallow groundwater underneath the site as a source of drinking water until cleanup standards are achieved.

The public health evaluation did not identify soil as an exposure pathway. The potential sources of VOCs in soil have been removed from the former UST locations, and the remaining VOC concentration in the unsaturated zone are reduced to below 1 ppm of total VOCs. Furthermore, the site is entirely capped by concrete building foundation, precluding potential exposure to soil (i.e., ingestion). Thus, no complete exposure pathway exists under the current or future site use.

25. **Evaluation of Remedial Technologies** Brandenburg developed and evaluated a list of possible alternatives for remediating contaminated soil and groundwater underneath the 153 West Julian Street site. The screening of technologies was based on their applicability to site characteristics, on the properties of the chemicals, and on reliability and performance of treatment technologies. The remaining technologies, such as (a) no action, (b) groundwater extraction and treatment and soil-vapor extraction (existing IRMs), (c) dewatering shallow groundwater and excavate VOC-affected soil, and (d) expansion of groundwater extraction and treatment, were then further evaluated on the basis of environmental and public health impacts and cost analysis. Final detailed analysis involved implementability, effectiveness, and total project costs. This evaluation followed the approach outlined in EPA's National Contingency Plan (see 40 CFR part 300).
26. **Remedial Actions** In compliance with the site cleanup requirements (Order No.

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88-062), Brandenburg submitted two reports titled Final Cleanup Objectives and Actions (FCOA) and FCOA Addendum in 1991 and 1993, respectively. Brandenburg also submitted FCOA Addendum Supplemental in October 1993. The 1991 report recommended to continue the IRM that includes groundwater extraction and treatment and soil-vapor extraction systems. The 1993 reports recommended expansion of the groundwater extraction and treatment system. The FCOA addendum and its supplemental also included a final design for the selected final remedy.

The final design discussed the rationale for the proposed extraction well locations and well configuration, an estimate of the capture zone that can be established by the wells, the rate of pumping that will required, and how the performance of the system will be evaluated. This document also included information on the time required for equipment acquisition, estimated time for system construction, and project date of implementation.

Based on the 1993 soil and groundwater remedial investigation results, site characteristics, effectiveness, and costs, this Order provides the "Expansion of Shallow Groundwater Extraction and Treatment System" as a final cleanup remedy, and the "Soil-Vapor Extraction System" as a contingent remedy for consideration if shallow groundwater elevation drops significantly.

Brandenburg's proposed final remedy includes the following:

- a) Two additional shallow extraction wells are installed at the site to provide hydraulic control and reduce VOC concentrations in shallow groundwater. Installation of these new extraction wells was determined based on the recent groundwater investigation data that indicated further migration of VOCs northwest of the source area.
- b) Brandenburg will continue extracting and treating from the contaminated shallow zone and, if needed, from the intermediate and deeper zones until cleanup standards in this Order (Table 1) are achieved. If cleanup standards cannot be achieved, the dischargers must demonstrate to the satisfaction of the Board that it is technically impractical from an engineering and/or hydrogeologic perspective and that an alternate proposed level will be protective of human health and the environment. The Order may then be modified by the Board to allow a less stringent on-site groundwater cleanup level.

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- c) The extracted and treated waste water will continue to be discharged based on NPDES permit limits, and VOCs emitted during air stripping process will continue to be treated to meet BAAQMD permit limits.
- 27. **Basis for Cleanup Standards** The groundwater cleanup standards for the site are U. S. EPA or California Department of Health Services MCLs (proposed or adopted). At this time, it appears that cleanup of groundwater to background level may be technically impractical due to the site's hydrogeology and the difficulties in restoring aquifers with respect to the physical and chemical properties of the contaminants. Thus, the MCL is acceptable to meet the intent of Resolution 68-16.
- 28. The discharger has caused or permitted, and threatens to cause or permit, waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.
- 29. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.
- 30. The Board has notified the discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.
- 31. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED**, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

**A. PROHIBITIONS**

- 1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the

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waters of the State is prohibited.

2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

**B. SPECIFICATIONS**

1. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. Additional characterization of the pollutant plume may be required, should monitoring results show evidence of further plume migration beyond that already identified, or new evidence of soil contamination.
3. All monitoring wells shall be used to determine if cleanup standards have been met; the wells used are determined by the Self-Monitoring Program (SMP) established under this Order.
4. **Cleanup Standards:** Final groundwater cleanup standards given in Table 1 below shall be met at all wells.

Table 1 Groundwater Cleanup Standards ( $\mu\text{g/l}$ )			
Chemical	California Primary MCL	U.S. EPA Primary MCL	Cleanup Standards
1,1-DCA	5	-	5
1, 1-DCE	6	7	6
1,1,1-TCA	200	200	200

5. **Future Changes to Cleanup Standards:** If new information indicates cleanup standards cannot be attained or can be surpassed, the Board will

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decide if further final cleanup actions, beyond those completed, shall be implemented at the site. If changes in health criteria, administrative requirements, site conditions, or remediation efficiency occur, the discharger will submit an evaluation of the effects of these changes on cleanup standards as defined in specification B.4.

6. The discharger shall implement the remedial action described in Finding 25.
7. **Cost Recovery:** Pursuant to Section 13304 of the California Water Code, the discharger is hereby notified that the Board is entitled to, and may seek reimbursement for all reasonable costs actually incurred by the Board to investigate unauthorized discharger of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, as required by this Order. The discharger shall reimburse the Board upon receipt of a billing statement for those costs.

C. **PROVISIONS**

1. The discharger shall submit to the Board acceptable monitoring program reports containing results of work performed according to the attached Self-Monitoring Program.
2. The discharger shall comply with the Prohibitions and Specifications above immediately except as modified by the time schedule and tasks listed below.

a. **COMPLETION DATE: APRIL 15, 1994**

**TASK 1: IMPLEMENTATION OF EXPANDED SHALLOW GROUNDWATER TREATMENT SYSTEM:** Submit a report acceptable to the Executive Officer which describes the expanded groundwater extraction and treatment system and documents full implementation of the system.

b. **COMPLETION DATE: APRIL 15, 1994**

**TASK 2: GROUNDWATER RECHARGE:** Submit a technical report acceptable to the Executive Officer evaluating the feasibility of

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recharging treated groundwater. The report shall discuss technical feasibility, cost, regulatory constraints, and potential effects on groundwater remediation.

c. **INSTITUTIONAL CONSTRAINTS**

1) **COMPLETION DATE: MAY 30, 1994**

**TASK 3: PROPOSED CONSTRAINTS:** Submit a technical report acceptable to the Executive Officer documenting procedures to be implemented by the discharger, including a deed restriction prepared and filed by Brandenburg (the beneficial owner) prohibiting the use of the upper aquifer groundwater as a source of drinking water. The Executive Officer may approve an alternative mechanism if it accomplishes the same function as a deed restriction. Constraints shall remain in effect until groundwater cleanup standards have been achieved and pollutant levels have stabilized in aquifers underneath the site.

2) **COMPLETION DATE: 60 days after Executive Officer's approval of Task 3**

**TASK 4: IMPLEMENT CONSTRAINTS:** Submit a technical report acceptable to the Executive Officer documenting that the proposed and approved constraints have been implemented.

d. **COMPLETION DATE: JANUARY 31, 1999**

**TASK 5: FIVE-YEAR STATUS REPORT AND EFFECTIVENESS EVALUATION:** Submit a technical report acceptable to the Executive Officer containing the results of any additional investigation; an evaluation of the effectiveness of installed final cleanup measures and cleanup costs; additional recommended measures to achieve final cleanup objectives and standards, if necessary; a comparison of previous expected costs with the costs incurred and projected costs necessary to achieve cleanup objectives and standards; and the tasks and time schedule necessary to implement any additional final cleanup measures. This report shall also describe the reuse of extracted groundwater

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and evaluate and document the cleanup of contaminated groundwater. If cleanup standards in this Order have not been achieved on-site and are not expected to be achieved through continued groundwater extraction and/or soil remediation, this report shall also contain an evaluation addressing whether it is technically practicable to achieve the cleanup standards, and if so, a proposal for procedures to do so.

- e. **COMPLETION DATE:** 90 days after request made by the Executive Officer

**TASK 6: EVALUATION OF NEW HEALTH CRITERIA:** Submit a technical report acceptable to the Executive Officer which contains an evaluation of how the final plan and cleanup standards would be affected, if the concentrations as listed in Specification B.4. changes as a result of promulgation of drinking water standards, maximum contaminant levels or action levels or other health based criteria.

- f. **COMPLETION DATE:** 90 days after request made by the Executive Officer

**TASK 7: EVALUATION OF NEW TECHNICAL INFORMATION:** Submit a technical report acceptable to the Executive Officer that documents an evaluation of new technical and economic information which indicates that cleanup standards or cleanup technologies in some areas may be considered for revision. Such technical reports shall not be required unless the Executive Officer or the Board determines that such new information indicates a reasonable possibility that the Order may need to be changed under the criteria described in Finding 26.

- g. **CURTAILING GROUNDWATER EXTRACTION**

- 1) **COMPLETION DATE:** 90 days prior to proposed curtailment of any or all groundwater extraction well(s) or treatment system

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**TASK 8: ON-SITE WELL(S) PUMPING CURTAILMENT CRITERIA AND PROPOSAL:** Submit a technical report acceptable to the Executive Officer containing a proposal to curtail pumping from any groundwater extraction well and the criteria used to justify such curtailment. Curtailment of groundwater extraction may include, but is not limited to: final shutdown of the system, a phased approach to shutdown, pulsed pumping, or a significant change in pumping rates. The report shall include the rationale for curtailing or modifying the system. The report for final shutdown of the system shall include data to show that groundwater cleanup standards for all VOCs have been achieved and pollutant levels have stabilized or are stabilizing, and that the potential for pollutant levels rising above cleanup standards is minimal.

If the proposal is a modification to the extraction and treatment system, it is subject to approval by the Executive Officer. If the proposal is substantive curtailment, it is subject to approval by the Board.

If the discharger claims that it is not feasible to achieve cleanup standards, the report shall evaluate the alternate standards that can be achieved, and that the alternative cleanup standards proposed will be protective of human health and the environment.

2) **COMPLETION DATE:** 60 days after Board or Executive Officer approves curtailment

**TASK 9: IMPLEMENTATION OF CURTAILMENT:** Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 9.

3. The submittal of technical reports evaluating interim and final remedial measures will include a projection of the cost, effectiveness, benefits, and impact on public health, welfare, and environment with the guidance provided by Subpart F of the NCP (40 CFR part 300); Section 25356.1(c) of the California Health and Safety Code; CERCLA guidance documents; and shall be consistent with the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with



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Respect to Maintaining High Quality of Waters in California."

4. If the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this order, the discharger shall promptly notify the Executive Officer, and the Board may consider revision to this Order for such delays that are beyond the control of the discharger.
5. Technical status reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted quarterly to the Board commencing on April 30, 1994, and covering the previous calendar quarter. Reports shall be submitted on a quarterly basis, until one year after implementation of the expanded groundwater extraction and treatment system. The technical reports may then be submitted semi-annually after the second and fourth quarters thereafter, or as required by the Executive Officer. These reports shall consist of: (1) a summary of work completed since submittal of the previous report and work projected to be completed by the time of the next report, (2) identification of any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) include, in the event of non-compliance with any Provision of Specification of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order.

These reports shall also identify any problems with or changes in the extraction and treatment system. Additionally, the reports shall include, but not be limited to, updated water table and piezometric surface maps and plume maps for all affected water-bearing zones, and appropriately scaled and detailed base maps showing the location of all monitoring wells and identifying adjacent facilities and structures. These reports may be combined with quarterly SMRs required per Provision C.1.

6. On an annual basis beginning with the report due January 31, 1995, or as required by the Executive Officer, the status report shall include an evaluation of the progress of cleanup measures such as hydraulic control

of the plume, performance of the remedy, estimation of capture zones influenced by extraction wells, establishment cone of depression using field data, and a summary of water quality data. The report shall also evaluate the effects of operation of existing extraction wells on groundwater levels and an estimate of the amount of chemicals removed via the extraction systems. These reports may be combined with quarterly SMRs required in Provision C.1. No such report needs to be filed in 1999.


7. The discharger shall submit technical reports acceptable to the Executive Officer containing revised Quality Assurance Project Plans, Site Safety Plans, and Site Sampling Plans, if requested by the Executive Officer.
8. All hydrogeological plans, specification, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist, or professional engineer.
9. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
10. The discharger shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
11. The discharger shall provide copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to the Santa Clara Valley Water District. The discharger shall also provide copies of cover letters, title page, table of contents and the executive summaries of compliance report - except for the annual progress reports, Proposal for Groundwater Remediation, and Proposal for Soil Remediation which would be submitted in full to the following agencies.
  - a. Santa Clara County Department of Environmental Health
  - b. City of San Jose Office of Environmental Management
  - c. California EPA/DTSC Site Mitigation Branch

12. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:
  - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
  - b. Access to copy any records required to be kept under the terms and conditions of this Order.
  - c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
  - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.
13. If any hazardous substance is discharged in or on any waters of the State, or discharged and deposited where it is, or probably will be discharged in or on any water of the State, the discharger shall report such discharge to this Board, at (510) 286-1255 on weekdays during office hours from 8:00 a.m. to 5:00 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-office hours. A written report shall be filed with the Board within five working days and shall contain information relative to: the nature of the waste or pollutant, quantity involved, duration of incident, cause of spill, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and scheduled of these activities, and persons, notified.
14. The discharger shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.
15. The Board will review this Order periodically and may revise the requirements when necessary.
16. Board Order No. 88-062 is hereby rescinded.

*Order No. 94-027*  
*Final Site Cleanup Requirements for*  
*153 West Julian Street Site*

*February 16, 1994*

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on February 16, 1994.



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Steven R. Ritchie  
Executive Officer

Attachments:      Figure 1 - Parcel Map  
                             Groundwater Self-Monitoring Program

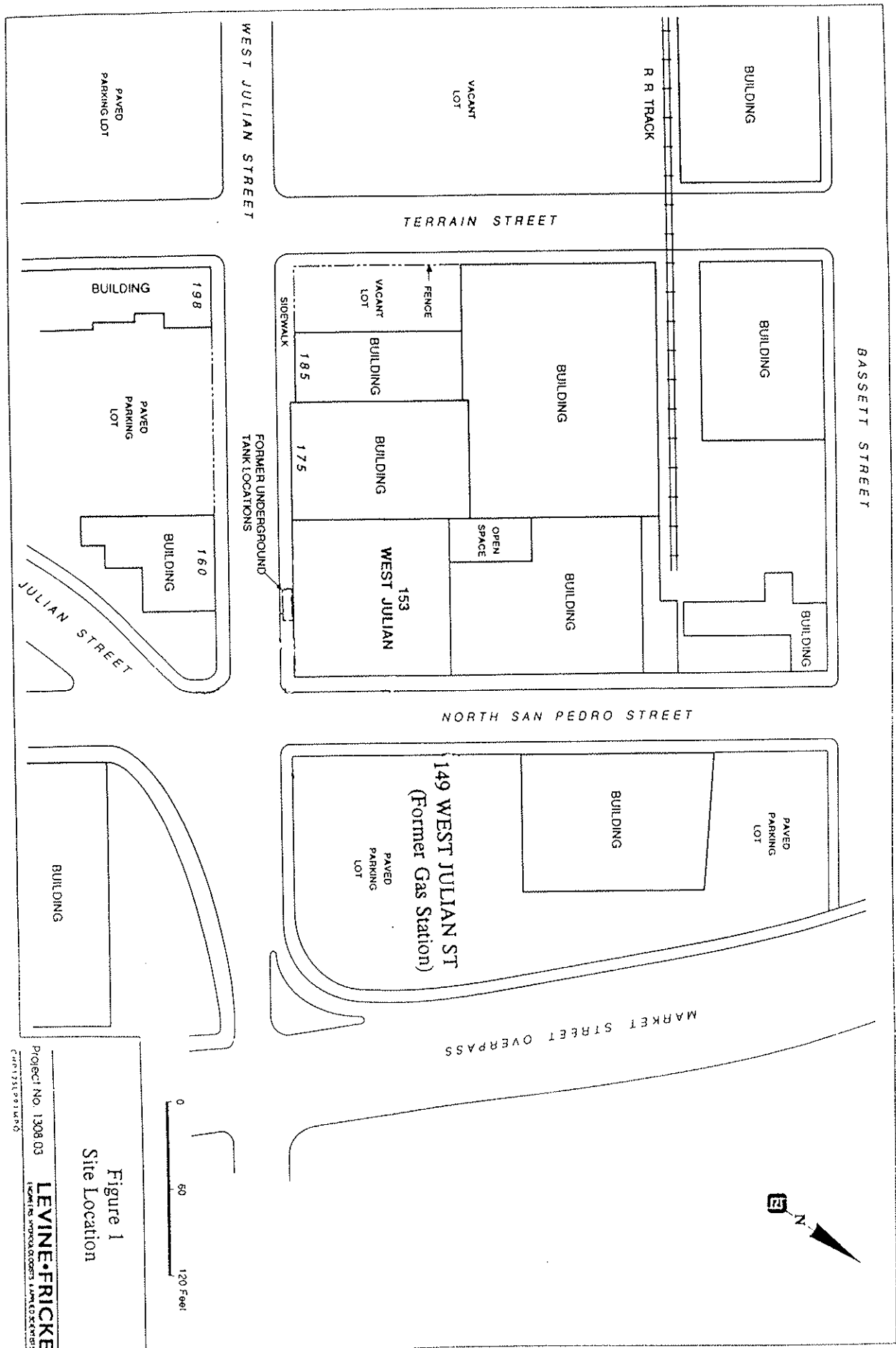


Figure 1  
Site Location

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

GROUNDWATER SELF-MONITORING PROGRAM

FOR

Brandenburg Family Associates One

153 West Julian Street

San Jose, Santa Clara County

ORDER NO. 94-027

Adopted on February 16, 1994

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

BRANDENBURG FAMILY ASSOCIATES ONE  
153 West Julian Street Site

GROUNDWATER SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13283, 13383 and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program (SMP), are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and waste water quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the EPA Method 8000 series in "Test Methods for Evaluating Solid Wastes, Physical/Chemical methods," dated November 1986; or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violation of Requirements

In the event the discharger is unable to comply with the conditions of the site cleanup requirements and prohibitions due to:

- a. maintenance work, power failures, or breakdown of waste treatment equipment, or
- b. accidents caused by human error or negligence, or
- c. other causes, such as acts of nature, or
- d. poor operation or inadequate system design,

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the discharger shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within five working days of the telephone notification. The written report shall include time, date, and person notified of the incident. The report shall include pertinent information explaining reasons for the non-compliance and shall indicate what steps were taken to prevent the problem from recurring.

2. The discharger shall file a written technical report to be received at least 30 days prior to advertising for bid (or 60 days prior to construction) on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, cost, and scheduling of all action necessary to preclude such discharge.

3. Self-Monitoring Reports (SMR)

SMRs shall be filed quarterly and are due one month after the end of the calendar quarter. The next SMR is due April 30, 1994.

The discharger shall notify Regional Board staff by telephone within fourteen days of receiving laboratory analytical results if (i) a chemical is detected which has not been detected previously, or (ii) if the concentration of any chemical in any well is at least one order of magnitude greater than detected the previous quarter.

The SMR shall be comprised of the following:

- a. Letter of Transmittal:

A letter from the discharger transmitting the SMR should accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violations. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory. Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer or a duly authorized representative of that person.



The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

b. Results of Analyses and Observations

- (1) Results from each required analysis and observation shall be submitted in the self-monitoring regular reports. Results shall also be submitted for any additional analyses performed by the dischargers at the specific request of the Board. Quarterly water level data shall also be submitted in the report.
- (2) The SMR shall include the groundwater extraction rates from each extraction well, water level data from the extraction wells, the results of any aquifer tests conducted.
- (3) The SMR shall include a discussion of unexpected operational changes which could affect performance of the extraction and treatment system, such as groundwater velocity and gradient fluctuations and maintenance shutdown.
- (4) The SMR shall also identify the analytical procedures used for analyses either directly in the report or by reference to a standard plan accepted by the Executive Officer. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.
- (5) The discharger shall describe in the SMR the reasons for significant increases in a pollutant concentration at a well. The description shall include:
  - (a) the source of the increase,
  - (b) how the discharger determined or will investigate the source of the increase, and
  - (c) what source removal measures have been completed or will be proposed.

- (6) Original lab results shall be retained and shall be made available for inspection for six years after origination or until after all continuing or impending legal or administrative actions are resolved.
- (7) The SMR shall include a summary of work completed since submittal of the previous report, design specifications if applicable, and work projected to be completed by the time of the next report.
- (8) The SMR shall include tabulated results of self-monitoring water quality sampling analyses for all wells using appropriate analytical methods. The annual report shall include updated isoconcentration maps of VOCs in groundwater.
- (9) The SMR shall include updated water table and piezometric surface maps, based on the most recent water level measurements for all affected water-bearing zones for all on-site and off-site wells. Interpretations of the data shall be discussed.
- (10) A map or maps shall accompany the SMR showing all sampling locations and plume contours for the predominant chemical(s), or other indicator chemicals upon request by the Executive Officer.
- (11) The annual report may be combined with the fourth quarter regular report and shall include cumulative data for current year. The annual report for January 31, 1995, shall also include minimum, maximum, median, and average water quality data for the year, and a summary of water level data and GC/MS results. The report shall contain both tabular and graphical summaries of historical monitoring data.

4. SMP Revisions

Additional long term or temporary changes in the sample collection frequency and routine chemical analysis may become warranted as

monitoring needs change. These changes shall be based on the following criteria and shall be proposed in a SMR. The changes shall be implemented no earlier than 45 days after the SMR is submitted for review unless approved in writing.

Criteria for SMP revision:

- (1) Discontinued analysis for a routine chemical parameter for a specific well after a two-year period of below detection limit values for that parameter
- (2) Changes in sampling frequency for a specific well after a two-year period of below detection limit values for all chemical parameters from that well
- (3) Temporary increases in sampling frequency or changes in requested chemical parameters for a well or group of wells because of a change in data needs (e.g. groundwater extraction effectiveness or other remediation strategies)
- (4) Add routine analysis for a chemical parameter if the parameter appears as an additional chromatographic peak in three consecutive samples from a particular well
- (5) Alter sampling frequency based on evaluation of collective data base

D. DESCRIPTION OF SAMPLING STATIONS

See Table 2 and Figure 2 for monitoring wells installed at the time of the adoption of this SMP.

E. SCHEDULE OF SAMPLING AND ANALYSES

1. All wells at the 153 West Julian Street site shall be sampled according to the schedule in Table 2. New monitoring wells shall be sampled quarterly for at least one year and semi-annually thereafter, with specific monitoring frequency given in an updated Table 2. For quarterly monitoring, water samples should be analyzed using EPA Methods 8010 in quarters 1-3 and using EPA Methods 8240 in quarter 4. For semi-

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annual monitoring, except for the asterisk wells, use EPA Methods 8010 for one sample and EPA Method 8240 for other. For annual monitoring, except for the asterisk wells, EPA method 8240 must be used. For asterisk wells see Table 2.

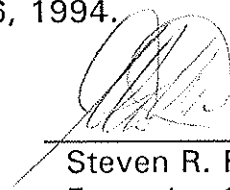
2. In addition, if a previously undetected compound or peak is detected in a sample from a well, a second sample shall be taken within a week after the results from the first sample are available. All chromatographic peaks detected in two consecutive samples shall be identified and quantified in the SMR.
3. Groundwater elevations shall be obtained on a quarterly basis from all wells at the site and submitted in the self-monitoring report with the sampling results.
4. Well depths shall be determined on an annual basis and compared to the depth of the well as constructed. If greater than ninety percent of screen is covered, the discharger shall clear the screen by the next sampling.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing self-monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with site cleanup requirements established in Regional Board Order No. 94-027.
2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer or Regional Board.
3. Was adopted by the Board on February 16, 1994.

2/17/94

Date

  
\_\_\_\_\_  
Steven R. Ritchie  
Executive Officer

Attachments: Table 2 - Monitoring Schedule  
Figure 2 - Wells Location Map

TABLE 2

**GROUNDWATER MONITORING SCHEDULE FOR  
153 WEST JULIAN STREET FACILITY**

SHALLOW ZONE		
Quarterly	Semi-Annually	Annually
E-3	E-1	L-1*
E-5	E-2	L-3*
SW-1	LF-7*	LF-9
SW-2	LF-10	WC-2
SW-3	LF-11	WC-3
---	WC-1	---
INTERMEDIATE ZONE		
Quarterly	Semi-Annually	Annually
---	LF-1	LF-2
---	LF-3	LF-4
---	---	LF-6
---	---	LF-12
DEEPER ZONE		
Quarterly	Semi-Annually	Annually
---	LF-1C	---
* Water samples should be analyzed for TPH-G and BTEX compounds.		

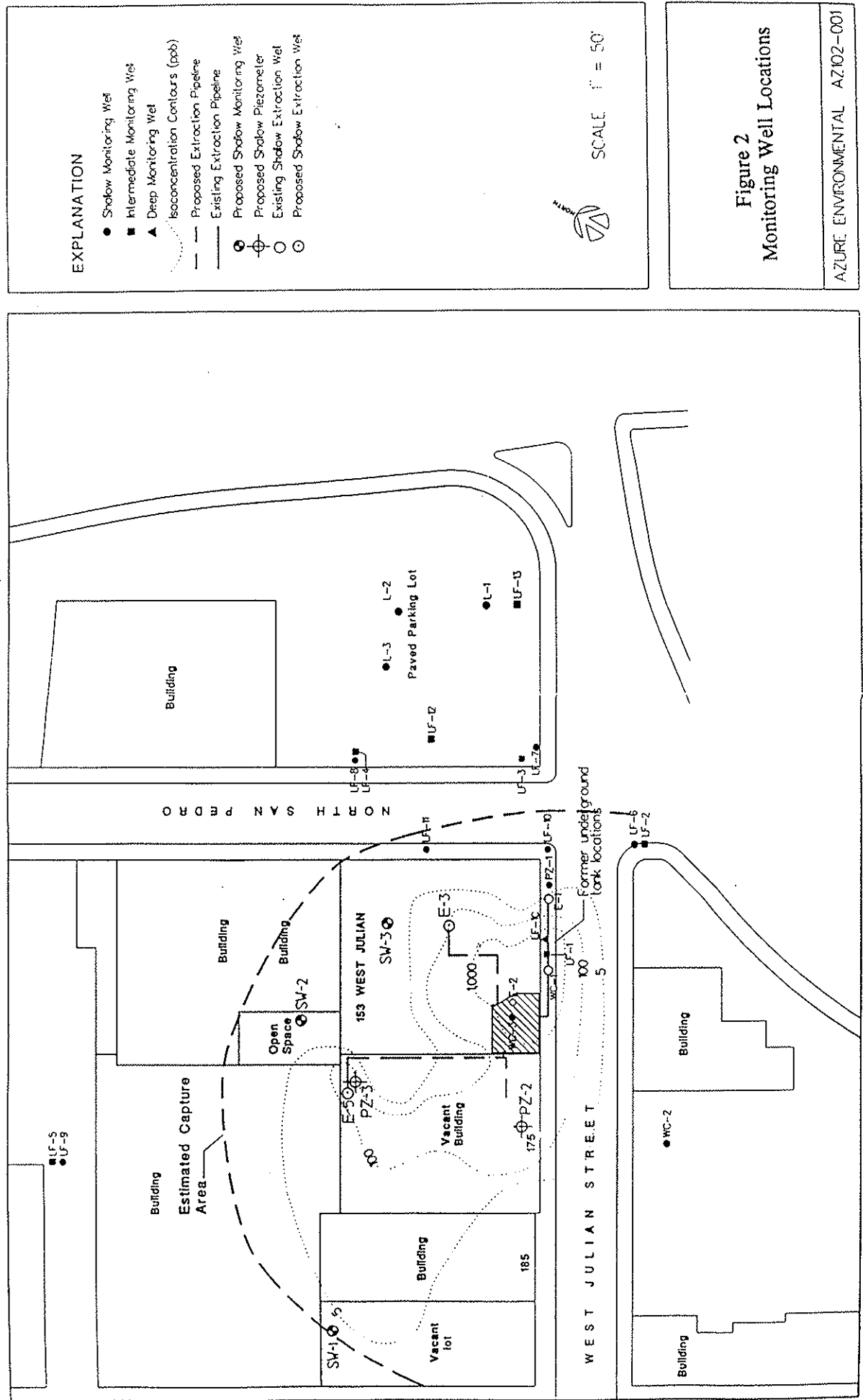


Figure 2  
Monitoring Well Locations